

Lee, Rawon; Hong, KiHoon; Chang, WoongJo

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*Corresponding author: WoongJo Chang, Department of Arts and Cultural Management, Hongik University, Seoul, Republic of Korea
E-mail: woongjochang@hongik.ac.kr

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MANAGEMENT | RESEARCH ARTICLE

Economic growth and the arts: A macroeconomic study

Rawon Lee¹, KiHoon Hong² and WoongJo Chang^{3*}

Abstract: Arts proponents frequently argue that the arts have a positive impact on the economy, yet this assertion is not supported by satisfactory statistical testing. Using the U.S. Gross Domestic Product (GDP) and National Arts Index (NAI), this study seeks to verify the contention that arts activities enhance economic growth. The test results signify, at the national level, a positive correlation between arts activities and economic growth in the U.S. between 2002 and 2013. However, the results do not yield strong statistical evidence for a causal relationship between GDP and NAI during the same time period. These findings do not necessarily invalidate the economic impact argument, but they do align with a call for further inquiry into the economic impact of the arts as expressed by other scholars. This study includes an overview of the development of the arts' economic impact argument as well as a discussion of ancillary research implications in the concluding section.

Subjects: Arts Administration; Economics, Finance, Business & Industry; Macroeconomics; Arts; Arts Management

Keywords: economic growth; arts; economic impact; gross domestic product; national arts index; GDP; NAI

1. Introduction

Many believe that arts activities are directly influenced by the economy. Intuitively, many expect economic growth to boost an increase in the arts activities. For instance, the rapid increase in the Chinese GDP and the concurrent and unprecedented degree of growth in the Chinese arts market may be interpreted as signifying a positive causal link between GDP and arts activities. In many cases, it seems logical that the arts activities would benefit from high economic growth, just as other industries do.

ABOUT THE AUTHORS

Rawon Lee, Ph.D. is a researcher in arts management and cultural policy. Recent works discuss management strategies for arts organizations.

KiHoon Hong, Ph.D. is an assistant professor of finance at Hongik University. Research areas include asset pricing, quantitative finance, risk management and blockchain technology.

WoongJo Chang, Ph.D. is an assistant professor in arts and cultural management at Hongik University. Recent works have examined entrepreneurship and sustainability in the arts.

PUBLIC INTEREST STATEMENT

Arts activities, such as going to symphony concerts and visiting arts museums, often entail economic activities such as paying for transportation and eating out. Supporters of the arts often persuade policymakers and businessmen to support the arts sector by arguing that subsidies granted to arts institutions contribute to boosting the economy at large. This study seeks to test the ground by examining the economic impact of arts activities at the macroeconomic level. The results are somewhat surprising yet inconclusive on the strength and accuracy of the economic impact argument for arts activities.

Meanwhile, there is an intriguing competing interpretation. A few studies (Myerscough, 1988; Whitt, 1987), which have articulated a positive causal link between arts activities and economic growth, have proposed that the economic growth can be attributed to the arts' ability to increase labor productivity by increasing the level of life satisfaction for arts participants.

Both perspectives have garnered scholarly support. Yet a review of the literature reveals no empirical study that has provided macroeconomic evidence to support either of the arguments. Surprisingly, current assumptions about the relationship between the arts and the economy await thorough empirical research and fair testing. Left unstudied, doubts about the economic impact of the arts (see Carstensen et al., 2000; Cohen, 2004; Sterngold, 2004a) may continue to prevail.

Given this background, this study tests the research hypothesis: "arts activities enhance economic growth." As far as is known, this is one of very few studies to investigate this proposition using macroeconomic data. It was only in 2013 that the U.S. Bureau of Economic Analysis (BEA) and the National Endowment for the Arts together developed *The U.S. Arts and Cultural Production Satellite Account: 1998–2013*, a dataset—first of its kind in the United States—intended to track the U.S. creative sector's contribution to the U.S. GDP. In 2018, BEA announced that 'arts and cultural economic activity accounted for 4.2 percent of gross domestic product (GDP), or 763.6 USD billion, in 2015' (Bureau of Economic Analysis, 2018, p. 1). Due to a lack of a properly specified econometric model of arts activities, this research does not test the hypothesis: 'economic growth enhances arts activities.'

It should be noted in advance that these test results are not a decisive measurement for the value of the arts in society; the value of the arts in its aggregate extends beyond its economic traits. Instead, this research provides an additional anchor to the study of the arts and the economy and how they impact one another.

The remainder of this paper is organized as follows: Section 2 presents the literature review; Section 3 presents the data and the proposed macroeconomic model; Section 4 provides the empirical results; and Section 5 concludes the paper.

2. Literature review

2.1. The development of economic impact studies in the arts

Traditionally, researchers have seldom doubted or tested the validity of the assumption that economic growth leads to greater artistic and cultural proliferation. Instead, researchers have tended to measure the impact of economic crises or recessions on the arts. In the analyses of the 2008 economic crisis, for example, many studies have reported the adverse effects of the crisis on the arts, including an increased unemployment rate for artists (Marlowe, 2010), a decline in arts participation (Miringoff & Opdycke, 2010), reduced private giving for the arts (Courchesne et al., 2014; Helicon Collaborative, 2009), a decrease in cultural organizations' endowment assets (Courchesne et al., 2014), and measurable harm to the quality of cultural activities (Moldoveanu & Ioan-Franc, 2011). At the same time, some other studies have found mixed results concerning the impact of the crisis, while still concluding that the crisis debilitated more than strengthened the arts sector (Madden, 2009; Nicholls, 2011).

A significant impetus for the study of the relationship between the arts and the economy comes from arts stakeholders who advocate for continued financial support for the arts. As famously stated by Baumol and Bowen (1966), the arts—especially the performing arts—are believed to suffer an inevitable "cost disease" in the market economy. The arts and cultural sector rely heavily on public and philanthropic giving in order to sustain its operations.

In defense of public and private giving for the arts, arts advocates articulate a mix of justifications. For instance, McCarthy et al. (2004) have described the arts as delivering a set of "intrinsic"

benefits (such as aesthetic values and positive feelings) and a set of “instrumental” benefits (namely cognitive, attitudinal and behavioral, health, social, and economic benefits) to both arts participants and the society at large. Additionally, scholars frequently strive to substantiate various benefits of the arts. In doing so, studies that are aimed at quantifying the impact of the arts on the economy—often referred to as economic impact studies—have risen as one of the most effective tools in constructing a compelling argument for arts giving over the years.

The first economic impact studies in the arts date back to the 1970s when the National Endowment for the Arts (NEA) and other arts-supporting organizations started conducting studies that highlight the arts’ contribution to the economy. Since then, the economic impact studies have newly characterized the arts sector and arts organizations as an economy-generating industry as opposed to a burdensome luxury to the local economy. In the following decades, economic impact studies have been extended to study the arts’ utility in urban development (Bianchini, 1993; Brooks & Kushner, 2001; Whitt, 1987) as well as in cultural tourism and the creative economy.

One of the most significant economic impact studies for the arts is the *Arts and Economic Prosperity* (AEP) study conducted by Americans for the Arts (AFTA) in 1994, 2002, 2007, 2012, and 2017. The AEP has been characterized as “the most comprehensive study of its kind” (Americans for the Arts, 2017, p. 1). The most recent AEP (Americans for the Arts, 2017) reported an array of tangible evidence for the economic value of the arts industry. For instance, according to the study, “the nonprofit arts industry generated 166.3 USD billion of economic activity in 2015—\$63.8 billion in spending by arts and cultural organizations and an additional 102.5 USD billion in event-related expenditures by their audiences. This activity supported 4.5 million jobs and generated 27.5 USD billion in revenue to local, state, and federal governments” (Americans for the Arts, 2017, p. 1). The AEP’s findings are actively utilized in the AFTA’s advocacy endeavors, especially in its lobbying efforts.

2.2. Criticisms for the economic impact studies in the arts

Beginning in the 1980s, however, some researchers (Hunter, 1989; Krikelas, 1992; Mills, 1993; Toepler, 2001) have raised questions regarding the validity of the claims made by some of the economic impact studies. Issues have been raised regarding the adequacy of research methodology and, subsequently, these studies have been criticized as inadequate grounds for policymaking decisions. For instance, based on the study findings published in 2002, AEP stated that financial support for the arts sector is “a financially wise investment in state and local economies throughout the nation” (Americans for the Arts, 2002, p. 168). However, the AEP’s claim was soon critiqued by Sterngold who has problematized the validity of AEP (Americans for the Arts, 2002), pointing out that “economic impact analyses that use only gross measures of impact, such as the AEP study, fail to provide any evidence to support their claims because the studies overlook the substitution effects of (nonprofit arts and cultural organizations)-related spending” (Sterngold, 2004b, p. 169). In support of his argument, Sterngold quoted other studies (Crompton et al., 2001; Tyrrell & Johnston, 2001) that have also raised issues with the way some of the economic impact studies quantify the economic impact of the arts. Although AEP author R. Cohen responded to Sterngold’s argument (Cohen, 2004) and Sterngold responded in turn (Sterngold, 2004a), Cohen has not fully answered to the criticism nor has the criticism invalidated the significance of AEP and its findings. This study, in effect, responds to the need to further investigate the validity of the economic impact case for subsidizing the arts from the perspective of economic growth promotion as presented by the arts advocates.

3. The model

3.1. Data

Data on population, real GDP per capita and investment spending as a fraction of GDP are from the Penn World Table, World Bank. All estimates reported below are based on GDP per capita. For consistency with most previous studies, analysis here is based on the Laspeyres index, base year international prices series on GDP per capita. This makes sure that the results are comparable to the existing line of literature. As discussed inconclusions are generally insensitive to the use of the

chain index of income available in the Penn World Table and to the use of GDP per worker. In any regression starting and ending years t and T , the steady-state physical capital accumulation rate s is measured by the year t to year T average ratio of investment to GDP. The steady-state population growth rate n is taken to be the average rate of population growth between years $t + 1$ and T .

Following the notation of Clark (1997), the variable y denotes income (real GDP) per capita, n denotes exogenous population growth, g represents the exogenous rate of growth of labor-augmented technology, δ is the common rate of depreciation of physical and human capital, and s and h denote the rates of physical and human capital accumulation, respectively. Following Clark (1993), the sum of capital depreciation and technology growth $\delta + g$ is assumed to be constant at 0.05. This indicates that the technological progress is proportionate to the rate of capital depreciation. Steady-state human capital accumulation h is measured by the primary and secondary school enrollment rates at the start of the period (year t).

The National Arts Index (NAI) provides a measure for the arts activities in the United States. NAI is an annual report on the U.S. arts and cultural sector creative vitality and economic health. The 2016 NAI, which offers a 12-year span (2002–2013) of data on the “health and vitality of the arts and culture in the United States” (Kushner & Cohen, 2016, p. i) is the sixth and the final publication of the study. The Index comprises 81 national-level indicators derived from the most recent annual data collected by private research organizations and the U.S. federal government. The indicators collectively address four dimensions of the arts and cultural sector: (1) financial flows; (2) capacity; (3) arts participation; and (4) competitiveness. Hence, it should be noted that the arts activities in this research include not only artistic activities (i.e., arts performances and audience participation in the arts) but also economic transactions that result from these artistic activities. A score is calculated for each year by designating 2003 the baseline year and assigning it a score of 100. Differences in each year’s score can be represented in percentage points and there is no set maximum index score.

Updated in November 2016 with the 2013 data, the Index “provides the fullest picture yet of the impact of the Great Recession on the arts—before, during, and after” (Kushner & Cohen, 2016, p. 1). It reveals that in 2012, as the economy continued to recover, the arts sector also began to come back from the economic meltdown of 2008 (Kushner & Cohen, 2016).

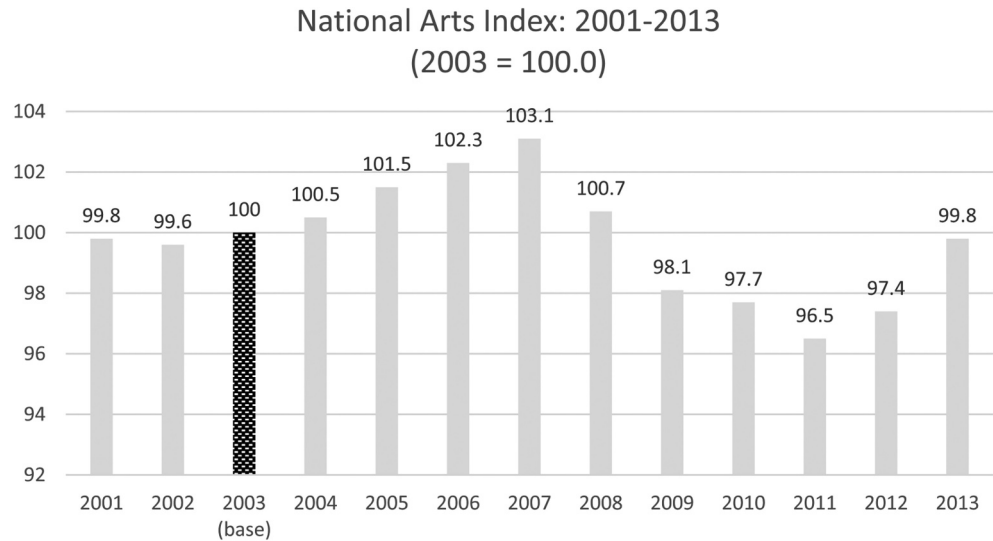
Adapted from National Arts Index 2016: An Annual Measure of the Vitality of Arts and Culture in the United States: 2002–2013, Kushner & Cohen (2016).

As can be seen in Figure 1, the Great Recession of 2008–09 had an immediate negative impact on the arts, reversing gains that had been made from 2002 to 2007 and resulting in a four-year decline in vitality and economic viability from 2007 to 2011. However, by 2012 and into 2013, recovery was underway as the NAI score approached the 2003 level: 97.2 in 2012 and 99.8 in 2013 (Kushner & Cohen, 2016).

In its evaluation of the national data, AFTA has identified five overarching trends (Kushner & Cohen, 2016): (1) the arts continued to recover from the Great Recession in 2013; (2) arts nonprofits continued to experience financial challenges; (3) arts attendance was fluid; (4) public funding of the arts stabilized; and (5) prospects are good for continued health in the arts.

The NAI also identifies changes in audience consumption and participation patterns (Kushner & Cohen, 2016): (1) technology is changing audience engagement and the arts delivery models; (2) arts and music preparation by college-bound seniors stabilized, following years of decline; (3) demand for college arts degrees increases; (4) consumer arts spending is flat at 151 USD billion; and (5) millions of Americans volunteer in the arts.

Figure 1. National Arts Index: 2001–2013.



Finally, the 2016 NAI reveals continuing trends and the ongoing challenges the arts sector faces (Kushner & Cohen, 2016): (1) arts employment remains strong; (2) America’s arts industries have a growing international audience; and (3) arts organizations foster creativity and innovation through new work.

In total, the sample is composed of 91 annual observations of macroeconomic variables and NAI from year 2001 to 2013.

3.2. Preliminary analysis

Table 1 presents the descriptive statistics of Arts Index growth rate and real GDP growth rate.

The Arts Index is designed to be mean reverting; therefore, it is not surprising to have zero expected growth rate. Thus, the volatility of the Arts Index growth rate is lower than that of real GDP growth rate. The Arts Index growth rate is less negatively skewed with lower kurtosis relative to real GDP growth rate.

Table 2 presents the correlation between real GDP growth rate and Arts Index growth rate.

In Table 2, the statistical significance of the correlation estimate is computed in a standard way as

$$t = r \sqrt{\frac{n - 2}{1 - r^2}}$$

where *t* is the t-statistic, *r* is the correlation estimate, and *n* is the number of observations. The result shown in Table 2 indicates there is no apparent statistically significant lead and lag

Table 1. Descriptive statistics of arts index growth and real GDP growth

Descriptive Statistics	Mean	Standard Deviation	Skewness	Kurtosis
Arts Index Growth	0.00%	1.46%	-0.54	3.02
Real GDP Growth	1.73%	1.75%	-1.78	6.75

This table reports mean, standard deviation, skewness and kurtosis of the Arts Index growth rate, and annual real GDP growth rate. The sample data ranges from 2001 to 2013.

Table 2. Correlation analysis

	Arts Lead	Concurrent	GDP Lead
Correlation Estimate	0.37	0.73	0.41
t-statistic	1.18	3.33	1.35

This table reports correlation and its statistical significance between real GDP growth rate and the Arts Index growth rate. Arts Lead correlation is estimated as the correlation between Arts Index growth at time $t-1$ and the real GDP growth rate at time t and GDP Lead correlation is estimated as the correlation between Arts Index growth at time t and the real GDP growth rate at time $t-1$. The sample data ranges from 2001 to 2013.

relationship between GDP growth rate and art activity growth rate. However, the correlation indicates that there is a potential concurrent relationship. Investigation of the correlation between art activity growth rate and GDP growth rate implies that the two are related. However, the fact that there is no clear lead-lag relationship does not resolve the question of whether art activities cause economic growth or are only influenced by economic growth.

3.3. Macroeconomic model of GDP

In order to empirically investigate whether art activities can enhance economic growth, the model of Mankiw et al. (1992) is employed; it is one of the most straightforward macroeconomic models for investigating GDP growth. Although it is one of the oldest models of GDP growth, it is still one of the most popular models in macroeconomics (see Cuaresma et al., 2019; Hanuschek & Woessmann, 2020). As many subsequent researches emphasize, this simplicity is powerful. The implications from one of the most straightforward, but still very popular model could deliver powerful insights.

As presented in Mankiw et al. (1992), the Solow Growth Model expands the existing models to incorporate human capital in order to derive a very simple relationship between economic growth and initial income, population growth and the rates of physical and human capital investment. More specifically, the Solow model takes the rates of savings, population growth, and technological progress as exogenous. There are two inputs, capital and labor, and a Cobb-Douglas production function is assumed. As a result, they derive the following equation:

$$\ln\left(\frac{y_t}{y_{t-1}}\right) = \gamma_0 + \gamma_1 \ln(y_{t-1}) + \gamma_2 \ln(n_t + g_t + \delta_t) + \gamma_3 \ln(s_t) + \gamma_4 \ln(h_t) + \varepsilon_t \quad (1)$$

The variable y denotes income (real GDP) per capita, n denotes exogenous population growth, g represents the exogenous rate of growth of labor-augmented technology, δ is the common rate of depreciation of physical and human capital, and s and h denote the rates of physical and human capital accumulation, respectively. As previously stated, $g_t + \delta_t$ is assumed to be constant at 0.05. The model of Equation (1) is shown by Clark (1997) to be effective in explaining real GDP growth rate with the introduction of inflation's effects. Clark (1997) shows that estimates the relationship suffer two robustness problems which plague a variety of model specifications. This paper closely follows the model of Clark (1997) but incorporates a time series aspect, and hence expands the existing analysis. Incorporating time series component could allow us to understand whether the explanatory relationship persists over certain period of time.

3.4. Introducing the arts

Now the Arts Index growth rate is incorporated as an explanatory factor to the above model described in Equation (1) and converts the model to time series. The following is derived:

$$\ln\left(\frac{y_t}{y_{t-1}}\right) = \gamma_0 + \gamma_1 \ln(y_{t-1}) + \gamma_2 \ln(n_t + g_t + \delta_t) + \gamma_3 \ln(s_t) + \gamma_4 \ln(h_t) + \gamma_4 \ln\left(\frac{a_t}{a_{t-1}}\right) + \varepsilon_t \quad (2)$$

4. Empirical analysis

4.1. Estimated result

With the data from 2001 to 2013, the model in Equation (2) is estimated. The result is presented in Table 3.

The data reveals that the Arts Index growth rate does not provide a statistically significant explanation for the GDP growth rate. As expected, all other macroeconomic variables have statistically significant explanatory power over GDP growth rate.

The empirical results stand in agreement with the concern that overemphasizing or exaggerating the arts' economic impact could potentially backfire on arts advocacy endeavors if not supported with thorough research and sound evidence. Arts advocacy endeavors may not be able to withstand inquisitions into the legitimacy of public subsidy for the arts without continued substantiation of the noneconomic (or extraeconomic) value of the arts.

4.2. Robustness test: Leading relationship

Thus, there is not enough empirical evidence to conclude that the concurrent Arts Index growth rate can explain the GDP growth rate. However, investigation into whether the previous period arts activities can explain the current period GDP growth rate is needed. If this is the case, it can be argued that art activities enhance economic growth. Therefore the following model is estimated:

$$\ln\left(\frac{y_t}{y_{t-1}}\right) = \gamma_0 + \gamma_1 \ln(y_{t-1}) + \gamma_2 \ln(n_t + g_t + \delta_t) + \gamma_3 \ln(s_t) + \gamma_4 \ln(h_t) + \gamma_5 \ln\left(\frac{a_{t-1}}{a_{t-2}}\right) + \varepsilon_t \quad (3)$$

The estimated result is presented in Table 4.

Table 3. Estimated result of Equation (2)

Variable	Coefficient	t-stat	p value
Constant	-8.2433	-3.3091	0.0213
$\ln(y_{t-1})$	-0.000040739	-3.6080	0.0154
$\ln(n_t + g_t + \delta_t)$	-32.5752	-3.6002	0.0155
$\ln(s_t)$	1.1024	4.1308	0.0091
$\ln(h_t)$	-5.6235	-4.5449	0.0061
$\ln\left(\frac{a_t}{a_{t-1}}\right)$	0.2308	1.1106	0.3173

This table reports the estimated parameters, $\gamma_0, \gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5$ of Equation (2). The sample data ranges from 2001 to 2013.

Table 4. Estimated result of Equation (3)

Variable	Coefficient	t-stat	p-value
Constant	-6.6214	-3.0279	0.0292
$\ln(y_{t-1})$	-0.00002891	-3.9847	0.0105
$\ln(n_t + g_t + \delta_t)$	-20.9221	-2.0151	0.1000
$\ln(s_t)$	0.8264	3.7355	0.0135
$\ln(h_t)$	-4.0900	-30337	0.0290
$\ln\left(\frac{a_{t-1}}{a_{t-2}}\right)$	-0.0733	-0.5302	0.6187

This table reports the estimated parameters, $\gamma_0, \gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5$ of Equation (3). The sample data ranges from 2001 to 2013.

Thus, the lagged Arts Index growth rate does not have statistically significant explanatory power over the GDP growth rate. This assures that the change in arts activities does not have statistically significant explanatory power over GDP growth rate.

5. Conclusion

Using the U.S. GDP and NAI, this study tested the proposition that arts activities enhance economic growth. First, a positive correlation was found between GDP and NAI between 2002 and 2013 leading to the conclusion that arts activities and economic growth appear to be positively related at the national level. Test result interpretations indicate that the arts grow with the economy in the United States, suggesting that the arts are an integral part of U.S. society in which economic growth does not constrain artistic activities, nor do artistic activities hamper economic growth. Rather, the vitality of the arts sector seems to reflect the strength of the national economy and *vice versa*.

At the same time, the test results do not provide statistically significant support for the view that an increase in arts activities spurs economic growth. No lead-lag relationship between U.S. GDP and NAI between 2002 and 2013 has been confirmed by the test results either. Rather, they suggest that a causal relationship between arts activities and economic growth may not be as evident or present as believed, at least at the national level.

In light of the mixed study conclusions on the arts' impact on the economy as previously described in this research, several interpretations and implications may be proposed for the test results. Foremost, the test results prolong an unsettlement in the evaluation of the impact of the arts on the national economy. Hence, the test results support Sterngold's concern that overemphasizing or exaggerating the arts' economic impact could potentially backfire on arts advocacy endeavors if not supported with sound evidence (Sterngold, 2004b). At this time, given the sparse macroeconomic evidence available, it is suspected that arts advocates may not be able to effectively counter challenges to the legitimacy of public subsidy for the arts if the noneconomic benefits of the arts are underestimated and undervalued by arts administrators, legislators, and the public.

In the meantime, interpreting the test results as invalidating the arts' economic impact argument may prove to be a mistake for at least two reasons. First, given the confirmed positive correlation between GDP and NAI in this research, one or more intervening variables may further clarify or confirm a causal impact of arts activities on economic growth. Second, although the NAI has well served the purpose of testing the research hypothesis at the macroeconomic level, the fact that the NAI encompasses a wide array of arts activities in its formulation—including some fading industries—should be noted in the evaluation of the test results' generalizability. Different types of arts activities may have different sets of impact on the economy. Hence, it is proposed to use a test that utilizes subsets of the 81 NAI indicators. Such an approach would expose multiple layers of specificity that this macrolevel study has not revealed, showing different clusters of arts activities or arts industries as having varying impacts on economic growth.

As previously mentioned, the results of this research do not constitute a conclusive measurement for the value of the arts. From an economic standpoint, nevertheless, these findings call for a more critical approach to evaluating the ramifications of economic impact studies. The relationship between the arts and the economy has been dynamic and continues to evolve. Continued scholarly investigation is required for extending the current debate on the impact of the arts on the economy in a way that better assists effective and legitimate policymaking.

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Author details

Rawon Lee¹
E-mail: rawonleemail@gmail.com
KiHoon Hong²
E-mail: khong@hongik.ac.kr
WoongJo Chang³
E-mail: woongjochang@hongik.ac.kr

¹ Department of Arts Administration, Education and Policy, The Ohio State University, Columbus, OH, USA.

² Department of Business Administration, Hongik University, Seoul, Republic of Korea.

³ Department of Arts and Cultural Management, Hongik University, Seoul, Republic of Korea.

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Appendix A.

Dictionary of terms and symbols

NAI: National Arts Index

AFTA: Americans for the Arts

y: income (real GDP) per capita

n: exogenous population growth

g: exogenous rate of growth of labor-augmented technology

δ : common rate of depreciation of physical and human capital

s: rates of physical capital accumulation

h: rates of human capital accumulation



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